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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/783,548	02/20/2004	Mark L. La Forest	H0005333-1160	7427

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EXAMINER
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WOLLSCHLAGER, JEFFREY MICHAEL

ART UNIT	PAPER NUMBER
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1732

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/09/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

Application No.

10/783,548

Applicant(s)

FOREST ET AL.

Examiner

Jeff Wollschlager

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 04 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 1-6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 7-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election of Group II in the reply filed on December 4, 2006 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). Claims 1-6 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 15, 16 and 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Regarding claim 15, the limitation, "the oxidized impregnated preform" lacks antecedent basis. Regarding claim 16, the limitation "through about" is unclear as to its limiting effect. For the purposes of examination the limitation is understood to mean that the heating step is to a temperature between about 1600 °C and about 2800 °C. Regarding claim 19, the limitation "flash cooling system" is unclear as to its limiting effect. The examiner notes that the specification as found in U.S. Patent Application Publication 2005/0184413, paragraph [0020], states "flash cooling (air, water, mist, etc.)" is employed. As such,

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cooling methods employing any of air, water or mist are understood to meet the claim limitation. Appropriate clarification is required to understand the intended limitation of the claim.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 7-19 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-20 of U.S. Patent No. 6,537,470 in view of Johnson (U.S. Patent 5,045,251). Although the conflicting claims are not identical they are not patentably distinct from each other.

Claims 1 and 2 of U.S. Patent 6,537,470 claims the basic claimed process of rapid resin or pitch transfer molding comprising placing a porous preform into a mold, the preform at a temperature above a melting point of a resin or pitch and means for

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containing the mold wherein the mold comprises a top half, a bottom half opposed to the top half so that the top half and the bottom half form a mold cavity, at least one gate disposed in the top half or bottom half, a valve to admit resin or pitch, and an arrangement for venting and/or providing vacuum to the mold; injecting a resin or pitch to effect impregnation and allowing the resin to cool below the melting point and removing the preform from the mold.

Regarding claim 7, claims 1 and 2 of the '470 claim the process described above, but do not expressly claim a plurality of gates/melt supply channels to effect the impregnations. However, Johnson, teaches that it is conventional in the art of resin transfer molding to employ multiple inlet ports in rapid resin cure applications in order to reduce the flow distances (col. 1, lines 52-54). Therefore it would have been obvious to one having ordinary skill in the art at the time of the claimed invention to employ a plurality of gates/melt channels in the top and bottom of the mold in the process of claims 1 and 2 of the '470 patent in order to reduce the distance of travel of the rapidly curing resin.

Regarding claims 8-19, claims 3-20 of the '470 patent substantially duplicate the claimed subject matter of these claims.

Claims 7-19 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-5, 11 and 12 of U.S. Patent No. 6,939,490. Although the conflicting claims are not identical they are not patentably distinct from each other.

Claim 1 of U.S. Patent 6,939,490 claims the basic claimed process of providing a preheated preform; providing a mold containing locating means for positioning a porous body within the mold insert cavity; heating the mold; injecting resin or pitch into the mold to effect a unidirectional flow of resin through the thickness of the porous body; permitting the preform to cool and removing the preform from the mold.

Regarding claim 7, claim 1 of the '490 patent claims the process described above, but does not claim flow of resin from channels located in the top and bottom of the mold cavity through valves. However, choosing which valves to operate to most effectively impregnate an item is conventional and would have been obvious to the ordinarily skilled artisan.

Regarding claims 8-19, claims 2-5, 11 and 12 of the '490 patent claim substantially duplicate subject matter or render obvious the subject matter of these claims.

Claims 7-19 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 5-17 of U.S. Patent No. 7,025,913. Although the conflicting claims are not identical they are not patentably distinct from each other.

Claims 5 and 6 of U.S. Patent 7,025,913 claims the basic claimed process of rapid resin or pitch transfer molding comprising placing a porous preform into a mold, the preform at a temperature above a melting point of a resin or pitch and means for containing the mold wherein the mold comprises a top half, a bottom half opposed to

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the top half so that the top half and the bottom half form a mold cavity, a pair of valves in the top and bottom half of the mold to admit resin, and an arrangement for venting and/or providing vacuum to the mold; injecting a resin or pitch to effect impregnation and allowing the resin to cool below the melting point and removing the preform from the mold.

Regarding claim 7, claims 5 and 6 of the '913 patent claim the process described above, but do not claim the mold cavity is annular. However, selection of the shape of the mold cavity would have been readily chosen by and obvious to the ordinarily skilled artisan in order to achieve the production of an intended product and does not patentably distinguish the method claims from each other.

Regarding claims 8-19, claims 7-17 of the '490 patent claim substantially duplicate subject matter.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

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under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 7-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wood et al. (U.S. Patent 6,537,470 or WO 02/18120) in view of Johnson (U.S. Patent 5,045,251).

Regarding claim 7, Wood et al. teach a process of rapid resin or pitch transfer molding comprising placing a porous preform into a mold wherein the preform is at a temperature above a melting point of a resin or pitch and means for containing the mold wherein the mold comprises a top half, a bottom half opposed to the top half so that the top half and the bottom half form a mold cavity, at least one gate disposed in the top half or bottom half, a valve to admit resin or pitch, and an arrangement for venting and/or providing vacuum to the mold; injecting a resin or pitch to effect impregnation and allowing the resin to cool below the melting point and removing the preform from the mold wherein the mold cavity is annular and the top and bottom half include an annular groove (Figure 5, 6 and 10; col. 4, lines 24-32; col. 8, lines 59-62; col. 9, lines 1- col. 10, lines 27). Wood et al. do not disclose a plurality of melt channels in the top and bottom half (example: Figure 10). However, Johnson, teaches that it is conventional in the art of resin transfer molding to employ multiple inlet ports in rapid resin cure applications in order to reduce the flow distances (col. 1, lines 52-54).



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Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to employ a plurality of gates/melt channels in the top and the bottom of the mold while practicing the method disclosed by Wood et al., in view of Figure 10 for example in the patent to Wood et al., as taught and suggested by Johnson in order to reduce the distance of the rapidly curing resin needed to travel.

As to claim 8, Wood et al. disclose the claimed materials (col. 20, lines 3-7).

As to claim 9, Wood et al. disclose the preform is a porous carbon body (col. 20, lines 19-21).

As to claim 10, Wood et al. disclose the preform may be used as a brake disc in an aircraft (col. 11, line 20).

As to claims 11 and 12, Wood et al. disclose the claimed temperatures (col. 20, lines 26-31).

As to claim 13, Wood et al. disclose the same claimed resins or pitch (col. 20, lines 32-39).

As to claim 14, Wood et al. place multiple preforms in a single mold (Figures 3, 9, and 10).

As to claims 15 and 16, Woods et al. oxidize and carbonize the preform at the claimed temperature (col. 20, lines 43-58).

As to claim 17, Wood et al. employ CVD/CVI or resin transfer molding (col. 20, lines 59-62).

As to claim 18, Wood et al. employ a vacuum (col. 20, lines 63-65).

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As to claim 19, Wood et al. cool the preform. The examiner notes that mold employed by Wood et al. is vented. As such, the volatile gases from the preform evaporate and are vented outside of the mold (col. 10, lines 4-5). This effects cooling by flash cooling.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wood et al. (U.S. Patent 6,537,470 or WO 02/18120) in view of Johnson (U.S. Patent 5,045,251), as applied to claims 7-18 above, and further in view of Lackey (U.S. Patent 5,916,633).

As to claim 19, in an alternative interpretation of the claim, Wood et al. in view of Johnson teach and suggest the process of claim 7, but Wood et al. do not disclose flash cooling with air, mist, water, etc. However, Lackey discloses an analogous method of producing composites wherein cooling water is utilized to cool the chamber and the composites (Figure 10).

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to cool the mold and preforms disclosed by Wood et al. with cooling water, as disclosed by Lackey, for the purpose of cooling the preforms more rapidly, as is routinely practiced in the art.

### ***Conclusion***

All claims are rejected.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Wollschlager whose telephone number is 571-272-8937. The examiner can normally be reached on Monday - Thursday 7:00 - 4:45, alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on 571-272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JW

Jeff Wollschlager  
Examiner  
Art Unit 1732

February 2, 2007

Mark Eashoo

MARK EASHOO, PH.D  
PRIMARY EXAMINER

03 / Feb / 07